The negative impact of the unnecessary prescribing of antibiotic is well known. Consequences include exposing patients to antibiotic adverse effects, risk of overgrowth of pathogenetic organisms such as clostridial species, unnecessary cost of drugs, and development of selection of antibiotic-resistant organisms in the populace at large. Acute viral respiratory infections are among the leading causes of inappropriate antibiotic usage.

Methods: This study examined the effect on inappropriate antibiotic prescribing rates of educating clinicians regarding antibiotic stewardship and making a prepackaged kit (containing symptom relief and patient education) for clinicians to distribute to patients with viral upper respiratory tract infections vs writing a prescription for antibiotics.

Results: Between December 1, 2018, and March 31, 2019, 357 viral illness support packs were distributed. Antibiotic prescriptions for the diagnostic codes pertaining to viral upper respiratory tract infections were tracked and compared to a similar period from December 1, 2017, to March 31, 2018. A 9% reduction in antibiotic prescriptions was observed ($P = .02$).

Conclusions: The results of this project demonstrate that the combination of patient education and the ready availability of a nonantibiotic symptomatic treatment option can significantly decrease the unnecessary prescribing of antibiotics for viral illnesses.
Clinicians and care teams received academic detailing prior to distribution of the viral support packs, stressing the importance of avoiding antibiotics to treat viral illnesses. Viral illness support packs were available for distribution from December 1, 2018, through March 31, 2019. The frequency of antibiotic dispensing to patients coded for ARI during this period was compared with that of the same time period in the previous year. All charts were reviewed for coding accuracy. Patients with illnesses requiring antibiotic treatment, such as pneumonia, exacerbations of chronic obstructive pulmonary disease and chronic bronchitis, and streptococcal pharyngitis, were excluded from the study. Statistical significance was determined using the unpaired t test.

RESULTS
From December 1, 2018, to March 31, 2019, 357 viral support packs were distributed to patients (Table). For the historical control period from December 1, 2017, through March 31, 2018, 508 patients were treated for ARIs. Of these, 295 (58%) received clinically inappropriate antibiotics. In contrast, of the 627 patients treated for ARIs during the study period from December 1, 2018, through March 31, 2019, 310 (49%) received clinically inappropriate antibiotics. The 9% decrease during the period when viral support packs were distributed, compared with the prior year, was statistically significant (P = .02).

DISCUSSION
The decrease in antibiotic prescriptions for ARIs was statistically significant. The success of this project can be attributed to 3 factors: clinician education, patient education, and the option for PCPs to provide symptomatic treatment for these patients rather than prescribe an antibiotic.

The importance of antibiotic stewardship has been emphasized to all PCPs at the VA Central Ohio Health Care System. Antibiotic stewardship has been the subject of grand rounds. Prior to distribution of the viral support pack, the chief of specialty medicine, the project’s champion, spoke to all PCPs. Adequate numbers of viral support packs were distributed to all primary care teams.

<table>
<thead>
<tr>
<th>Antibiotics received</th>
<th>Control period, No. (%)</th>
<th>Study period, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>December</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>51 (40)</td>
<td>77 (54)</td>
</tr>
<tr>
<td>Yes</td>
<td>75 (60)</td>
<td>65 (46)</td>
</tr>
<tr>
<td>January</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>70 (40)</td>
<td>91 (49)</td>
</tr>
<tr>
<td>Yes</td>
<td>105 (60)</td>
<td>95 (51)</td>
</tr>
<tr>
<td>February</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>58 (54)</td>
<td>67 (54)</td>
</tr>
<tr>
<td>Yes</td>
<td>53 (46)</td>
<td>58 (46)</td>
</tr>
<tr>
<td>March</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>39 (41)</td>
<td>82 (47)</td>
</tr>
<tr>
<td>Yes</td>
<td>57 (59)</td>
<td>92 (53)</td>
</tr>
<tr>
<td>Total*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>213 (42)</td>
<td>317 (51)</td>
</tr>
<tr>
<td>Yes</td>
<td>295 (58)</td>
<td>310 (49)</td>
</tr>
</tbody>
</table>

*P = .02.

FIGURE Viral Illness Support Pack Contents

In addition to direct clinician-to-patient education at the time of the patients’ visits, educational materials were included in the viral support pack. The Antibiotics Aren’t Always the Answer pamphlet is available from the Centers for Disease Control and Prevention. It covers the importance of antibiotic awareness, discusses what antibiotics do and do not treat, how to stay healthy, and causes of antibiotic resistance. The pamphlet contains the clear message that antibiotics are not only ineffective against viral illness, but also can cause significant undesirable outcomes.

The pamphlet Viral Illness Support Pack Traffic Light Card (eAppendix available online at doi:10.12788/fp.0302) provides important clinical information to the patients about their illness. Patients are instructed to contact their primary care team.
if they are worse after 3 days of illness; symptoms are not improving after 10 days; or they experience blood in respiratory secretions, chills or generalized aching, and localized pain that is one-sided or significantly worsening. Patients are clearly informed to seek further care if not improving with symptomatic treatment.

The ability to provide patients with symptomatic relief, including throat lozenges, lip balm, and acetaminophen, was felt to be important in the success of the project. Furthermore, this eliminated an extra step of the patient needing to visit the pharmacy.

Limitations
Limitations of the study included starting distribution of the support packs somewhat after the onset of the viral illness season, failure to reach all prescribers for academic detailing at the start of the program, and several instances of temporary unavailability of the support packs in some areas.

CONCLUSIONS
Patients with ARIs are often significantly symptomatic and frequently believe that they require an antibiotic for treatment. Clinicians may adjust their behavior in response to their patients’ expectations, stated or unstated. The results of this project demonstrate that the combination of patient education and the ready availability of a nonantibiotic symptomatic treatment option can significantly decrease the unnecessary prescribing of antibiotics for viral illnesses.

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Author affiliations
*Chalmers P. Wylie Veterans Affairs Ambulatory Care Center, Columbus, Ohio

Author disclosures
Dr. Fagan has served on the Speakers Bureaus for Allergan (Teflaro), AstraZeneca (Symbicort, Bevespi, Daliresp), Boehringer Ingelheim Pharmaceuticals (Combivent, Atrovent, Spiriva), GlaxoSmithKline (Seravevent, Advair), Forest Pharmaceuticals (Tudorza, Daliresp), Mylan Pharmaceuticals (Perforomist), Ortho-McNeil (Levaquin), Pfizer (Spiriva, Chantix, Exubera), and Wyeth Pharmaceuticals (Zosyn). Tylenol, which was a component of the Viral Illness Support Pack, is distributed by McNeil Consumer Healthcare Division. Dr. Fagan was engaged with the Ortho-McNeil Speakers Bureau in the marketing of Levaquin from 1996–1997. Dr. Fagan’s current financial relationship is with AstraZeneca only (Symbicort, Bevespi, Daliresp). He serves on the Speakers Bureau. The remaining authors report no actual or potential conflicts of interest or outside sources of funding with regard to this article.

Disclaimer
The opinions expressed herein are those of the authors and do not necessarily reflect those of Federal Practitioner, Frontline Medical Communications Inc., the US Government, or any of its agencies. This article may discuss unlabeled or investigational use of certain drugs. Please review the complete prescribing information for specific drugs or drug combinations—including indications, contraindications, warnings, and adverse effects—before administering pharmacologic therapy to patients.

References
eAppendix Viral Illness Support Pack Traffic Light Card

**SORE THROAT**
- Soothe a sore throat with ice chips, sore throat spray, lozenges, or honey
- Use a saline humidifier or cool mist vaporizer
- Gargle with salt water
- Drink warm beverages
- Take acetaminophen to relieve pain or fever but only up to 2000 mg in any 24 hour period.

**EAR PAIN**
- Put a warm moist cloth over the ear that hurts
- Take acetaminophen to relieve pain or fever but only up to 2000 mg in any 24 hour period.

**RUNNY NOSE**
- Get plenty of rest
- Increase fluid intake
- Use a decongestant or saline nasal spray to help relieve nasal symptoms. Stop the decongestant after 3 days.

**SNEEZE/COUGH/PRESSURE**
- Put a warm compress over the nose and forehead to help relieve sinus pressure.
- Use a decongestant or saline nasal spray
- Breathe in steam from a bowl of hot water or shower
- Take acetaminophen to relieve pain or fever but only up to 2000 mg in any 24 hour period.

**SNEEZE**
- Use sugar-free cough lozenges.
- Use an ultrasonic humidifier or cool mist vaporizer
- Breathe in steam from a bowl of hot water or shower
- Use non-medicated lozenges

**HOW AM I FEELING?**

- **RED ZONE**
  - Worse than yesterday after 3rd day of illness
  - Symptoms not improving after 10 days
  - Blood in respiratory secretions
  - Chills or generalized aching
  - Localized pain that is one-sided or significantly worsening
  - Unusual shortness of breath

- **YELLOW ZONE**
  - Feel no better than yesterday
  - Fever of 103 or lower, not sustained
  - Nasal/lung secretions darker or thicker, without blood present
  - Pain persisting or slightly worse (e.g., Muscle aches, sore throat)

- **GREEN ZONE**
  - Feeling somewhat better than yesterday
  - No significant or sustained fevers
  - Nasal/lung respiratory secretions thinner in color or decreasing in volume
  - Pain (or muscle aches, sore throat, chest ache from cough) getting better

**WHAT SHOULD I DO?**

- **RED ZONE**
  - Contact your VA Provider
  - Seek further medical care if unable to contact VA Provider
  - Withhold smoking

- **YELLOW ZONE**
  - Continue symptomatic therapy as long as symptoms persist
  - Evaluate your symptoms tomorrow
  - Follow suggestions on reverse
  - Withhold smoking

- **GREEN ZONE**
  - Stop symptomatic therapy when you are ready
  - Discontinue or minimize smoking

Abbreviations: ACC, ambulatory care center; VA, US Department of Veterans Affairs.